AF/3683

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Re:	Application of:	Wolfgang NIESSEN
	Serial No.:	10/733,486 Confirmation No.: 7690
	Filed:	December 11, 2003
	For:	METHOD AND SYSTEM FOR CONTROLLING THE CREEP BEHAVIOR OF A VEHICLE EQUIPPED WITH AN AUTOMATED CLUTCH
	Art Unit:	3683
	Examiner:	Robert SICONOLFI
	Customer No.:	23280
	Atty. Docket:	588.1005

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P.O. Box 1450
Alexandria, VA 22313-1450

September 18, 2006

APPELLANTS' BRIEF UNDER 37 C.F.R. § 41.37

Sir:

Appellants submit this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Final Rejection dated February 13, 2006 in this application. The statutory fee of $500.00 is paid concurrently herewith.

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1. REAL PARTY IN INTEREST

The real party in interest is LuK Lamellen und Kupplungsbau Beteiligungs KG, a German corporation having a place of business in Buehl, Germany, the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned by inventor Niessen to LuK Lamellen und Kupplungsbau KG. The assignment was recorded on April 1, 2004 at reel 015158, frame 0148.

2. RELATED APPEALS AND INTERFERENCES

Appellants, their legal representatives, and assignee are not aware of any appeal, interference or judicial proceeding that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

3. STATUS OF CLAIMS

Claims 1, 3 to 5 and 8 to 17 are pending. Claims 2, 6 and 7 have been canceled. Claims 1, 3 to 5 and 8 to 17 have been finally rejected as per the Final Office Action dated February 13, 2006.

The rejection to claims 1, 3 to 5 and 8 to 17 thus is appealed. A copy of appealed claims 1, 3 to 5 and 8 to 17 is attached hereto as Appendix A.

4. STATUS OF AMENDMENTS AFTER FINAL

No amendments to claims were filed after the final rejection. An advisory action was issued on May 30, 2006. A Notice of Appeal was filed on June 12, 2006 and received by the U.S.P.T.O. on June 16, 2006.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 1 recites a method for controlling creep behavior of a vehicle equipped with an automated clutch (see, e.g. paragraphs [0002], [0014], 4 in Fig. 2), comprising the detection of actuation of a brake actuating element (see, e.g., paragraph [0022], 34 in Fig. 2), a creep parameter (see, e.g., paragraph [0027] and KP_I in Fig. 1) influencing a creep of the vehicle (see, e.g., paragraph [0023], Fig. 1) and an actuating position of the automated clutch (see, e.g., 4 in Fig. 2) being a function of the creep parameter

(see, e.g., paragraph [0027] and KP_I in Fig. 1). The method controls the creep parameter (see, e.g., paragraph [0027] and KP_I in Fig. 1) when the brake actuating element is increasingly actuated so that the creep is reduced (see, e.g. paragraph [0021], Fig. 1), the creep parameter being a speed of the vehicle (see, e.g. paragraph [0024]).

Independent claim 8 recites a system for controlling the creep behavior of a vehicle equipped with an automated clutch (see, e.g. paragraphs [0002], [0014], 4 in Fig. 2) comprising engine sensors (see, e.g. paragraph [0005], 18 and 20 in Fig. 2) for detecting operating parameters of a vehicle engine (see, e.g. paragraph [0005], 2 in Fig. 2); a brake sensor (see, e.g. paragraph [0022], 44 in Fig. 2) for detecting an operating state of a vehicle braking device (see, e.g. paragraph [0007], 35 in Fig. 2); a power adjustment actuator (see, e.g. 30 in Fig. 2, paragraph [0006]) for controlling a power output of the engine; a clutch actuator (see, e.g. paragraph [0009], 16 in Fig. 2) for controlling the clutch (see, e.g. paragraph [0009], 4 in Fig. 2) and a brake actuating element (see, e.g. paragraph [0007], 34 in Fig. 2). The system has an electronic control device (see, e.g. paragraph [0006], 14 in Fig. 2) having memory devices and a microprocessor (see, e.g. paragraph [0006], 29 in Fig. 2). The electronic control device (see, e.g. paragraph [0006], 14 in Fig. 2) is connected to the engine sensors, brake sensor (see, e.g. paragraph [0022], 44 in Fig. 2), clutch actuator (see, e.g. paragraph [0009], 16 in Fig. 2) and brake actuating element (see, e.g., Fig. 2) and controls the clutch actuator (see, e.g. paragraph [0009], 16 in Fig. 2) according to analysis of the brake sensor signals so as to control creep behavior according to the previously described method (see, e.g., paragraph [0027] and Fig. 1).

Independent claim 11 recites a system for controlling the creep behavior of a vehicle equipped with an automated clutch (see, e.g. paragraphs [0002], [0014], 4 in Fig. 2) comprising a brake actuating element (see, e.g. paragraph [0022], 34 in Fig. 2); a brake sensor (see, e.g. paragraph [0022], 44 in Fig. 2) sensing actuation of the brake actuating element; a clutch actuator (see, e.g. paragraph [0009], 16 in Fig. 2) for controlling the clutch (see, e.g. paragraph [0005], 4 in Fig. 2); a speed sensor (see, e.g., paragraph [0024]) detecting a rotational speed of a transmission input shaft downstream of the clutch (see, e.g. paragraphs [0002], [0014], 4 in Fig. 2); and an electronic control device (see, e.g. paragraph [0006], 14 in Fig. 2) having memory devices and a microprocessor (see, e.g. paragraph [0006], 29 in Fig. 2), the electronic control device (see, e.g. paragraph [0006], 14 in Fig. 2) connected to the

brake sensor (see, e.g. paragraph [0022], 44 in Fig. 2) and clutch actuator (see, e.g. paragraph [0009], 16 in Fig. 2), the control device receiving an input from the speed sensor and reducing vehicle creep as the brake actuating element is increasingly actuated (see, e.g., paragraph [0027] and Fig. 1).

Independent claim 16 recites a method for controlling creep behavior of a vehicle equipped with an automated clutch(see, e.g. paragraphs [0002], [0014], 4 in Fig. 2), comprising detecting actuation of a brake actuating element (see, e.g. paragraph [0027] to [0029]); and controlling the automated clutch to attain a vehicle speed setpoint (see, e.g. paragraph [0027], KPs in Fig. 1), the vehicle speed setpoint being reduced as the brake actuating element is increasingly actuated (see, e.g. paragraph [0027], Fig. 1).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 3 to 5, 8 to 17 should be rejected under 35 U.S.C. § 103(a) as being unpatentable over Sasa (EP 375 162).

7. ARGUMENTS

35 U.S.C. 103 Rejections

The issue presented is whether claims 1, 3 to 5, 8 to 17 should be rejected under 35 U.S.C. § 103(a) as being unpatentable over Sasa.

Claim 1 recites a method for controlling creep behavior of a vehicle equipped with an automated clutch, comprising: "detecting actuation of a brake actuating element, a creep parameter influencing a creep of the vehicle, an actuating position of the automated clutch being a function of the creep parameter" and "controlling the creep parameter using a vehicle speed setpoint so that when the brake actuating element is increasingly actuated, the vehicle speed is reduced."

As admitted by the Office Action, Sasa does not disclose "controlling the creep parameter using a vehicle speed setpoint so that when the braking element is increasingly actuated, the vehicle speed is reduced" as claimed.

Rather Sasa directly controls clutch engagement amount as a function of brake depression. See Fig. 4(h) and related description.

Sasa does not set or have any "vehicle speed setpoint" at all, but rather has a desired clutch engagement amount. Such clutch engagement amount varies the speed of a vehicle, but is only one factor in the speed of the vehicle, since the actual speed of the vehicle will vary for example depending on whether the vehicle is on a hill, etc. Thus Sasa does not use a vehicle speed setpoint, explicitly or implicitly.

Morever, if a vehicle speed setpoint were used, Sasa would not use a corrective value E for a road surface gradient as shown in Fig. 4 (i). This corrective value alters the clutch engagement/brake pedal relationship, but is completely independent of a specific vehicle speed and the correction would be useless and unnecessary were Sasa actually using a vehicle speed setpoint.

Sasa also clearly is not targeting a specific vehicle speed as clear from the statement in column 9:

> [T]ravel at very low velocity can be achieved with ease by merely controlling the amount of brake pedal depression, and the amount of clutch engagement can be corrected in dependence upon the state of the road surface of which the vehicle is situated, the desired amount of adjustment set by the creep device, and the state of vehicle load.

Sasa merely asserts that by controlling the clutch engagement as a function of brake pedal force, all travel at low velocities can be made easier- no specific velocity is targeted. Again, the use of corrective values independent of vehicle speed makes clear that no vehicle speed setpoint is being used.

In addition, it is respectfully submitted that it would not have been obvious to provide the device of Sasa with such a vehicle speed setpoint, as it would have made the entire corrective value scheme of Sasa moot and Sasa wants a direct correspondence between brake pedal amount and clutch engagement force. Sasa deliberately dealt with creep without using a vehicle speed setpoint, and there also no teaching or motivation to so modify Sasa.

Claims 11 and 16 also recite a vehicle speed setpoint limitation.

Withdrawal of the rejection to claims 1, 11 and 16 and their dependent claims is respectfully requested.

Claim 12: Argued separately

With further respect to claim 12, claim 12 recites wherein the speed of the vehicle is controlled so as to vary linearly with actuation of the brake element.

Sasa provides no information on the actual vehicle speed, but rather the only on the clutch engagement amount. The speed of a vehicle is not dependent solely on the clutch engagement amount, and thus Sasa also does not disclose the limitation of claim 12 and thus withdrawal of the rejection of this claim for this reason as well is respectfully requested.

The Advisory Action states" with respect to claims 12 and 13, the examiner stated "that the slope of graph of Fig. 4(h) is equal to the claimed slope." This assertion is factually incorrect: The claim addresses the vehicle speed, while Fig. 4(h) clutch engagement amount. Vehicle speed is not in a direct relationship with clutch engagement amount, as discussed above.

Claim 13: Argued Separately

Claim 13 recites wherein the speed of the vehicle is controlled so that the speed of the vehicle equals (BMAX-B/BMAX)*VMAX for B<BMAX and zero for B>BMAX, where B is the brake actuation, BMAX is a maximum creep brake actuation, and VMAX is the maximum vehicle creep when the brake is not actuated.

No such speed control is disclosed in Sasa, nor have the limitations of NMAX and VMAX been addressed by either the Office Action or the Advisory Action.

Withdrawal of the rejection to claim 13 for this reason as well is respectfully requested.

Claim 14: Argued Separately

Claim 14 recites the method as recited in claim 1 wherein the speed of the vehicle is determined using a sensor sensing a rotational speed of an input shaft to a transmission, the sensor being downstream of the clutch.

There is no such step or disclosure in Sasa, nor has the Office Action identified any.

Withdrawal of the rejection to claim 14 for this reason as well is respectfully

requested.

Claim 15: Argued Separately

Claim 15 recites the method as recited in claim 14 wherein the speed of the vehicle is determined using the transmission ratio.

There is no such disclosure in Sasa, nor has the Office Action identified any.

Withdrawal of the rejections to claims 1, 3 to 5, 8 to 17 thus is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,

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APPENDIX A:

PENDING CLAIMS 1, 3 to 5, 8 to 17 OF
U.S. APPLICATION SERIAL NO. 10/733,486

Claim 1 (previously presented): A method for controlling creep behavior of a vehicle equipped with an automated clutch, comprising:

detecting actuation of a brake actuating element, a creep parameter influencing a creep of the vehicle, an actuating position of the automated clutch being a function of the creep parameter; and

controlling the creep parameter using a vehicle speed setpoint so that when the brake actuating element is increasingly actuated, the vehicle speed is reduced.

Claim 2 (canceled).

Claim 3 (original): The method as recited in claim 1 wherein the detecting step includes detecting an actuation force on the brake pedal.

Claim 4 (original): The method as recited in claim 1 wherein the detecting step includes detecting a pressure in a brake system.

Claim 5 (original): The method as recited in claim 1 wherein the detecting step includes detecting a path of the brake actuating element.

Claims 6 and 7 (canceled).

Claim 8 (original): A system for controlling the creep behavior of a vehicle equipped with an automated clutch, the system comprising:

engine sensors for detecting operating parameters of a vehicle engine;

a brake sensor for detecting an operating state of a vehicle braking device;

a power adjustment actuator for controlling a power output of the engine;

a clutch actuator for controlling the clutch;

a brake actuating element; and

an electronic control device having memory devices and a microprocessor, the electronic control device connected to the engine sensors, brake sensor, clutch actuator and brake actuating element, the control device controlling the clutch actuator according to analysis of the brake sensor signals so as to control creep behavior according to the method as recited in claim 1.

Claim 9 (original): The system as recited in claim 8 wherein the engine sensors includes a first sensor for detecting a vehicle speed.

Claim 10 (original): The system as recited in claim 9 wherein the first sensor detects a rotational speed of an input shaft of a transmission situated downstream from the clutch in order to detect the vehicle speed.

Claim 11 (previously presented): A system for controlling the creep behavior of a vehicle equipped with an automated clutch, the system comprising:

a brake actuating element;

a brake sensor sensing actuation of the brake actuating element;

a clutch actuator for controlling the clutch;

a speed sensor detecting a rotational speed of a transmission input shaft

downstream of the clutch; and

an electronic control device having memory devices and a microprocessor, the electronic control device connected to the brake sensor and clutch actuator, the control device receiving an input from the speed sensor and controlling a speed of the vehicle using a vehicle speed setpoint so as to reduce vehicle creep as the brake actuating element is increasingly actuated.

Claim 12 (previously presented): The method as recited in claim 1 wherein the speed of the vehicle is controlled so as to vary linearly with actuation of the brake element.

Claim 13 (previously presented): The method as recited in claim 1 wherein the speed of the vehicle is controlled so that the speed of the vehicle equals (BMAX-B/BMAX)*VMAX for B<BMAX and zero for B>BMAX, where B is the brake actuation, BMAX is a maximum creep brake actuation, and VMAX is the maximum vehicle creep when the brake is not actuated.

Claim 14 (previously presented): The method as recited in claim 1 wherein the speed of the vehicle is determined using a sensor sensing a rotational speed of an input shaft to a transmission, the sensor being downstream of the clutch.

Claim 15 (previously presented): The method as recited in claim 14 wherein the speed of the vehicle is determined using the transmission ratio.

Claim 16 (previously presented): A method for controlling creep behavior of a vehicle equipped with an automated clutch, comprising:

detecting actuation of a brake actuating element; and

controlling the automated clutch to attain a vehicle speed setpoint, the vehicle speed setpoint being reduced as the brake actuating element is

increasingly actuated.

Claim 17 (previously presented): The method as recited in claim 16 further comprising determining a vehicle speed as a function of an input shaft to a transmission.

APPENDIX B

Evidence Appendix under 37 C.F.R. §41.37 (c) (ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

APPENDIX C

Related proceedings appendix under 37 C.F.R. §41.37 (c) (x):

As stated in "2. RELATED APPEALS AND INTERFERENCES" of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.